

**What is claimed is:**

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1. A peritoneal dialysis system for a patient, comprising:  
a peritoneal dialyzer that utilizes dialysate to remove impurities from the blood of the patient; and  
a plurality of sorbent devices for regenerating the dialysate, wherein the sorbent devices are adapted to be worn on the body of a patient..
2. The peritoneal dialysis system of claim 1, wherein the sorbent devices are connected in series.
3. The peritoneal dialysis system of claim 1, wherein each of the sorbent devices has a flexible casing adapted to conform to the body contour of the patient.
4. The peritoneal dialysis system of claim 1, wherein the number of sorbent devices may be varied to reflect different dialysis prescriptions.
5. The peritoneal dialysis system of claim 1, further including a regenerated dialysate inlet tube leading into the peritoneal dialyzer and a spent dialysate outlet tube leading out of the peritoneal dialyzer.

6. The peritoneal dialysis system of claim 5, wherein the regenerated dialysate inlet tube includes a side port for the infusion of additives.
7. The peritoneal dialysis system of claim 6, wherein the additives are pumped into the dialysate from a plurality of additive reservoirs.
8. The peritoneal dialysis system of claim 6, wherein the rate of infusion of each additive is controlled electronically.
9. The peritoneal dialysis system of claim 6, wherein the additives are chosen from the group consisting of: sodium citrate, calcium, potassium and sodium bicarbonate.
10. The peritoneal dialysis system of claim 5, wherein the spent dialysate tube leads into the plurality of sorbent devices and the regenerated dialysate tube leads out of the plurality of sorbent devices.
11. The peritoneal dialysis system of claim 1, wherein the sorbent devices comprise replaceable cartridges.
12. The peritoneal dialysis system of claim 11, wherein the replaceable cartridges include: activated charcoal, urease, zirconium phosphate, hydrous zirconium oxide and activated carbon.

13. The peritoneal dialysis system of claim 1, wherein the sorbent devices are connected in parallel.
14. A method of continuous removal of impurities from the blood of a patient using a wearable peritoneal dialysis system, comprising the steps of:  
infusing fresh dialysate into the peritoneal cavity of the patient so that the impurities in the blood are diffused across the peritoneal membrane and into the dialysate;  
removing the spent dialysate from the peritoneal cavity; and  
regenerating the dialysate using a plurality of sorbent devices that are worn on the body of a patient.
15. The method of claim 14, further comprising the step of connecting the sorbent devices in series.
16. The method of claim 14, further comprising the step of providing a flexible casing for each of the sorbent devices for conformity with the body contour of the patient.
17. The method of claim 14, further comprising the step of varying the number of sorbent devices to reflect different dialysis prescriptions.

18. The method of claim 14, further comprising the step of providing a regenerated dialysate inlet tube leading into the peritoneal dialyzer and a spent dialysate outlet tube leading out of the peritoneal dialyzer.
19. The method of claim 18, further comprising the step of providing a side port on the regenerated dialysate inlet tube for the infusion of additives.
20. The method of claim 19, further comprising the step of pumping the additives into the dialysate from a plurality of additive reservoirs.
21. The method of claim 18, further comprising the step of controlling the rate of infusion of each additive electronically.
22. The method of claim 18, further comprising the step of choosing the additives from the group consisting of: sodium citrate, calcium, potassium and sodium bicarbonate.
23. The method of claim 14, wherein the sorbent devices comprise replaceable cartridges.
24. The method of claim 23, wherein the replaceable cartridges include: activated charcoal, urease, zirconium phosphate, hydrous zirconium oxide and activated carbon.

25. The method of claim 14, further comprising the step of connecting the sorbent devices in parallel.

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